



REALTEXT BROADCASTING
RealNetworks Technical Blueprint Series
RealSystem 8

RealNetworks, Inc.
2601 Elliott Avenue, Suite 1000
Seattle, WA 98121
U.S.A.

<http://www.real.com>
<http://www.realnetworks.com>

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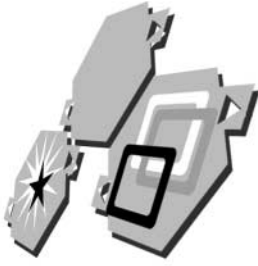
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BROADCASTING REALTEXT

Because RealServer can broadcast RealText live, RealText is an ideal solution for delivering continuously updated textual information, such as stock market quotes or headline news. Because it is a true streaming server, RealServer streams the data as it comes in, instead of downloading blocks of data to users' computers for later display. This technical blueprint explains how to use the RealText broadcast application.

Additional Information

RealSystem Production Guide provides an overview of broadcasting. *RealText Authoring Guide* explains the RealText mark-up. Both manuals are available at **<http://service.real.com/help/library/encoders.html>**. For more on configuring a broadcast with RealServer, see *RealServer Administration Guide*.

Broadcast Application

You can broadcast RealText to multiple viewers with an application included with the HTML version this manual. The broadcast application runs on any Windows 32-bit operating system. Its C++ source code is publicly available, though, and you can compile it on a different operating system as noted in “Developing a Custom RealText Broadcast Application” on page 6.

The RealText broadcast application connects to RealServer and polls a specified directory for an updated RealText file. When it finds an updated file, it sends the file to RealServer, which broadcasts the file contents to the connected RealPlayers.

Tip

RealProducer tools let you broadcast RealAudio and RealVideo as well. They are available at <http://www.realnetworks.com/products/index.html>.

Broadcast Libraries

The RealText broadcast application comprises the **exlvtxt2.exe** executable file and a few DLLs. These files must reside together, but you can move them to any directory on the RealText broadcast machine. To run the live RealText encoder, you use the shared libraries listed in the following table.

RealText Broadcast Shared Libraries

Windows 32-Bit	UNIX
rtli3260.dll	rtlive.so.6.0
encn3260.dll	encnet.so.6.0
sdpp3260.dll	sdpplin.so.6.0
auth3260.dll	authmgr.so.6.0
rn5a3260.dll	rn5auth.so.6.0

You can broadcast on the RealServer machine or any Windows 32-bit machine with a network connection to RealServer. RealText broadcast requires minimal system resources, but RealNetworks recommends using a Pentium 133 MHz or faster processor with at least 32 Megabytes of memory.

Tip

The RealText broadcast application consumes unused CPU for monitoring purposes but releases CPU as other processes need it. On an otherwise idle machine, CPU use for RealText broadcast may seem high, but the actual CPU requirement for broadcasting is small.

Note

To broadcast RealText from a UNIX platform, copy the libraries from your platform's RealServer plugins directory and compile the broadcast application. See "Developing a Custom RealText Broadcast Application" on page 6 for more on the application source code.

Creating a Broadcast RealText Clip

Create a RealText clip for broadcast as a simple text file. Use the RealText mark-up tags described in *RealText Authoring Guide* to format the display text. The file should not have `<window>` and `</window>` tags. You set window attributes such as type, width, and height when you start the broadcast application. RealServer sends these attributes to each RealPlayer when it connects to the broadcast.

Tips for Creating Broadcast RealText Files

Here are some pointers on using RealText mark-up when broadcasting a file:

- Start a new input file with the `<clear/>` tag to clear the existing text in the RealPlayer window. Do not use a `<clear/>` tag in the middle of an input file, though. In a broadcast, a `<clear/>` tag does not need to follow a `<time begin.../>` tag.
- Avoid using `<time.../>` tags to specify when text appears. Timing elements specify offsets from the start of the broadcast, not from the receipt of the RealText update that includes the elements. Using timing tags can therefore cause unexpected results.
- Keep RealText broadcast files small and broadcast them in a “real time” manner. Do not send large files that use RealText timing tags to delay when the text appears in the RealPlayer window.

Setting the Broadcast URL

Consult with the RealServer administrator to determine the URL for the RealText broadcast. If you are linking a Web page directly to the RealText broadcast, the URL may look like this:

```
<a href="http://realserver.company.com/ramgen/encoder/media/news.rt">...</a>
```

This URL includes two virtual directories. The ramgen virtual directory makes RealServer launch RealPlayer without a separate RAM file. The encoder virtual directory specifies a broadcast coming in on a certain port of RealServer rather than an actual file existing on a file system. The RealServer administrator sets up these virtual directories.

If you use a SMIL file, the Web page URL to the file may look like this:

```
<a href="http://realserver.company.com/ramgen/media/daily.smi">...</a>
```

Within the SMIL file, you'll have an RTSP link to the RealText broadcast:

```
<textstream src="rtsp://realserver.company.com/encoder/media/news.rt"/>
```

Additional Information

For more on using SMIL and specifying URLs for media clips, see *RealSystem Production Guide*, available at

<http://service.real.com/help/library/encoders.html>.

Using SMIL, you can embed a RealText broadcast in a multclip presentation. You might create a RealVideo clip region and a RealText region that displays breaking news, for example. The SMIL file uses the broadcast URL for the text and a standard URL for the on-demand RealVideo clip. Each person who views the presentation sees the video from its normal beginning, but joins the RealText broadcast in progress.

Starting the RealText Broadcast Application

To run the RealText broadcast application, start the Windows DOS prompt and move to the directory that holds the application. Then start the application as shown in this example:

```
c:\RealText\Broadcast> exlvtxt2.exe
```

The application prompts you for a number of parameter values that the following table describes. Enter all values without quotation marks.

RealText Broadcast Application Start-up Parameters

Parameter	Value
host	The network address of the RealServer machine that will stream the RealText clip. This can be a DNS name such as realserver.company.com or an IP address such as 204.71.154.5.
port	The port on the RealServer machine that receives the RealText data from the broadcast application. The RealServer administrator determines which port is used.
username	A user name set by the RealServer administrator. The broadcast application must supply this user name to RealServer to connect to it.
password	The password for the user name. The application must supply this to connect to RealServer. The RealServer administrator sets the password.
stream file name	The "file name" for the RealText live stream. This file name is used in the RealText hypertext link within the SMIL file or Web page. It does not have to be the same as the input file, but it should end with the .rt extension.

(Table Page 1 of 2)

RealText Broadcast Application Start-up Parameters (continued)

Parameter	Value
input file	Name of the RealText file on the broadcast machine to monitor. If the file is not in the same directory as the RealText broadcast application, give the full path as in c:\RealText\Broadcast\source\news.rt.
polling period	Frequency in seconds that the broadcast application checks for an update to the input file. The default is 1 second.
window type	Window type of generic, tickertape, marquee, scrollingnews, or teleprompter. The generic window type is the default.
use defaults?	Whether to use the defaults for the chosen window type. Press Return to use all default values, which are described in <i>RealText Authoring Guide</i> . Enter n to have the application step through the window values. For example, the application asks for a pixel value for the window width. If you selected a generic window, you can use the default value of 320 or enter a different pixel width. There is no duration time for live RealText.
Average bit rate	Estimated average bit rate for the live RealText stream in bits per second. The default is 1000 (1 Kbps). When the text stream is part of a multclip presentation, RealPlayer uses this estimate to determine if it has enough bandwidth to play the presentation.

(Table Page 2 of 2)

Specifying a RealText Version

The *RealText Authoring Guide* explains that certain features (generally support for languages other than English) require a RealText version number. To pass a version number when broadcasting RealText, add `?version="number"` to the stream file name when prompted:

stream filename (the name RealPlayers will
use to view the stream): livetext.rt?**version=1.4**

Moving a RealText File to the Broadcast Directory

Once started, the broadcast application checks the designated directory with the specified polling frequency for an updated version of the RealText input file. You can place a new file in the directory manually or use any automated method, such as a database query, to create the file. All file updates must use the same input file name specified during application start-up.

The RealText broadcast application resends prior data every three seconds when there is no new data. If you update the input file at 5 and 7 minutes into

the broadcast, for example, a viewer joining the broadcast at the 6-minute mark receives the data originally sent at the 5-minute mark within three seconds. That viewer's RealPlayer then ignores all further resends and next displays the file update broadcast at the 7-minute mark.

Stopping the Broadcast Application

To stop the RealText broadcast stream, update the RealText input file so that it has a dollar sign (\$) as its first character. Text can follow the dollar sign, but it is ignored:

```
[file start]
$ ignored text
[file end]
```

This file, which is not broadcasted, causes RealServer to terminate the broadcast stream. It also shuts down the broadcast application console window on the broadcast machine.

Warning

Do not stop the RealText broadcast by pressing **Ctrl+C** from the broadcast application console. This terminates the window but will not properly shut down the RealText stream on RealServer.

Developing a Custom RealText Broadcast Application

The RealSystem SDK, which you can download from <http://www.realnetworks.com/devzone/downloads/index.html>, includes the sample C++ source code for a RealText broadcast application. Subject to the SDK license agreement, you can customize the broadcast application to do any of the following:

- Compile the RealText broadcast application to run on any operating system.
- Create a new broadcast application that adds RealText mark-up to a live text stream and sends the data to RealServer.
- Integrate RealText broadcast features into another application.

Closed-Captioning

For closed-captioning, use a device such as TextGrabber from SunBelt Industries (<http://www.sunbeltindustries.com>). This device supplies text from a TV signal through an RS232 interface. Your customized RealText broadcast application can receive the text, format it with RealText mark-up, and send it to RealServer for broadcast.